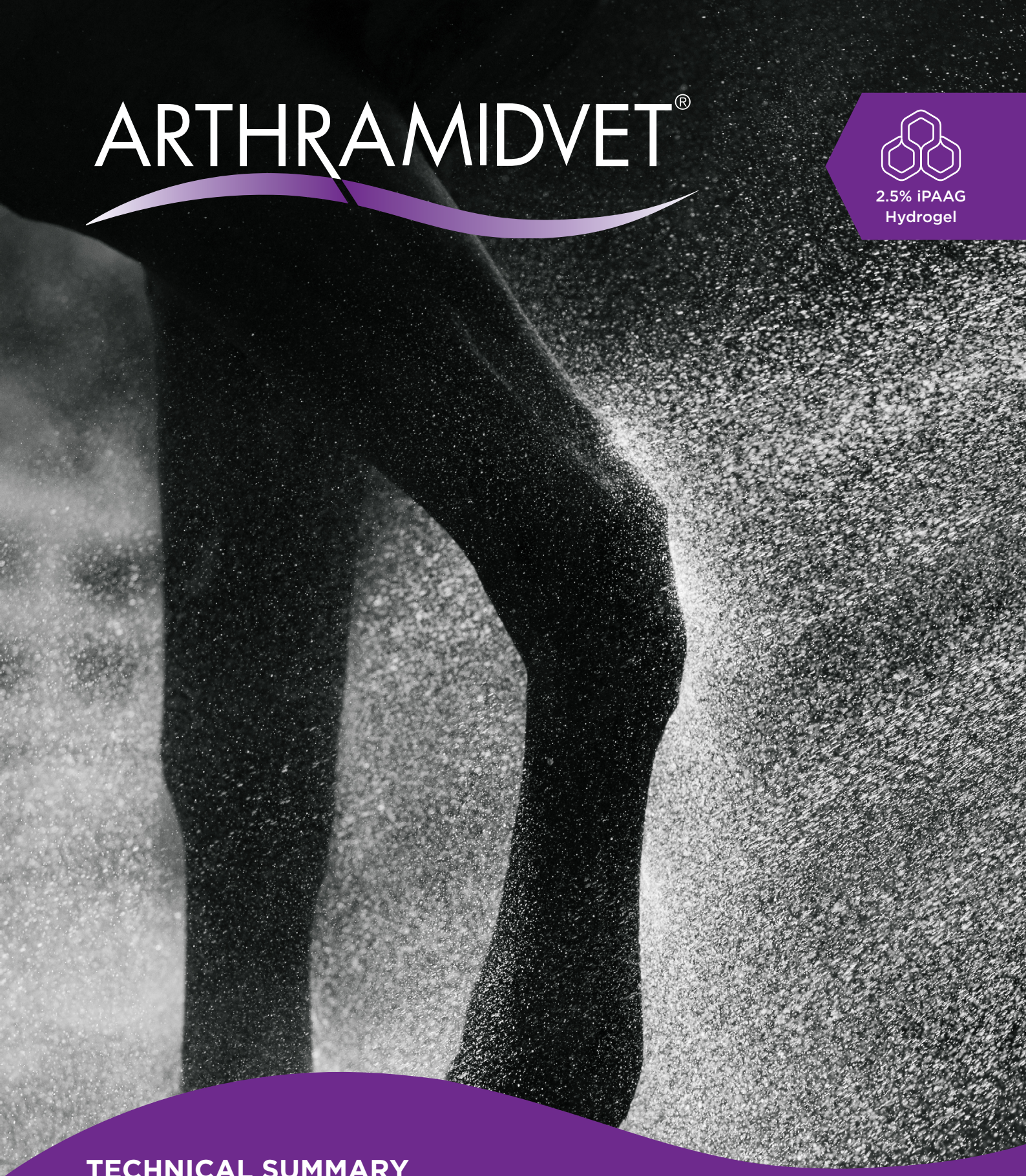
# ARTHRAMIDVET®

2.5% iPAAG
Hydrogel



TECHNICAL SUMMARY

# Leading Lameness Treatment

Patented for the treatment of synovitis

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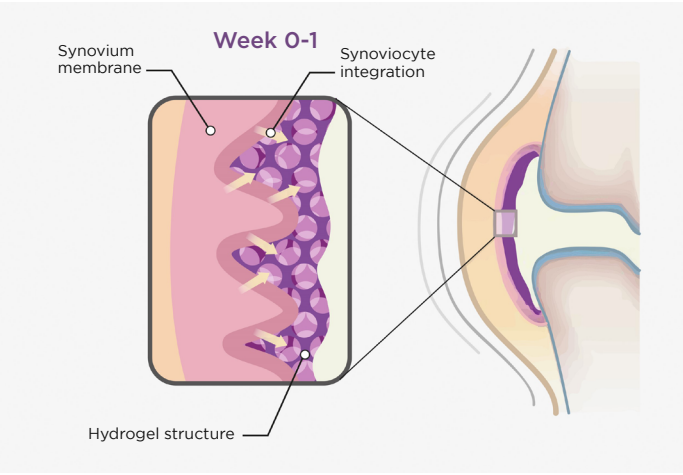
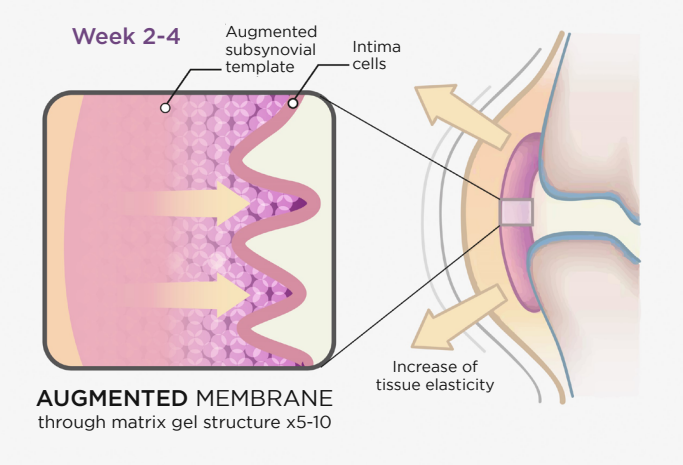
# ArthramidVet®

ArthramidVet® is a unique and patented 2.5% iPAAG (intra-articular polyacrylamide) hydrogel offering an innovative, safe treatment option for veterinarians. It is used to manage arthritic joints in animals through its precise therapeutic action on the synovial membrane of the joint that results in improved joint function and resolution of lameness[1,2].


*Sterile 1mL pre-filled syringe with a Luer-lock fitting*

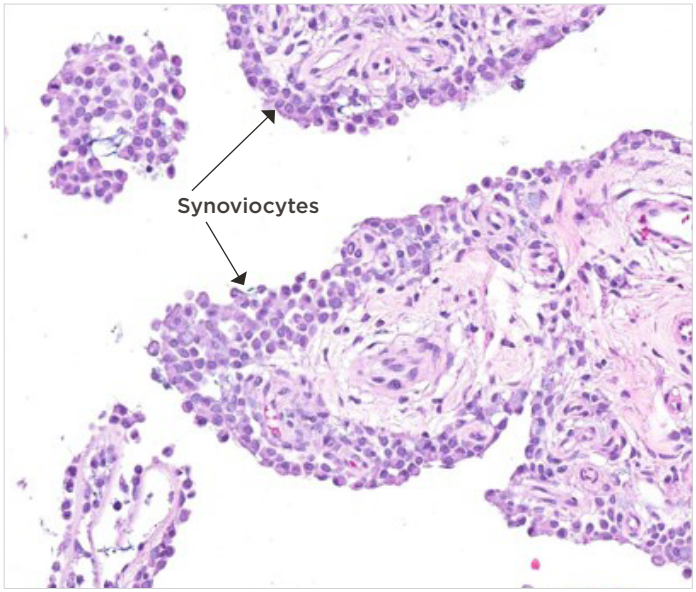
ArthramidVet® is produced by a patented process called In-line Cross-Linking Technology (ILX Technology), forcing water molecules between the cross-linked polymers of polyacrylamide (CAS No. 9003-05-8), that provides the 2.5% iPAAG gel molecule with exceptional safety, molecular stability and the ability to retain its viscoelastic properties inside the synovium[3]. It acts as a tissue scaffold that is inert, biocompatible, neuro-innocuous and non-pharmaceutical[4].




# Mode of Action

Upon injection into the joint, ArthramidVet® adheres to the synovial lining, immediately reducing exposure of synoviocytes to pro-inflammatory cytokines in the inflamed or diseased joint. The associated infiltration of mononuclear cells in the sub-intima may further lead to the release of endogenous anti-inflammatory cytokines (such as IL-1 receptor antagonist protein, transforming growth factor-beta 1, and insulin-like growth factor 1, amongst others)[5,6].




*Magnification of synoviocyte hyperplasia and hypertrophy (5-year old TB gelded horse; 42 days; RFC Prox. 20x).*

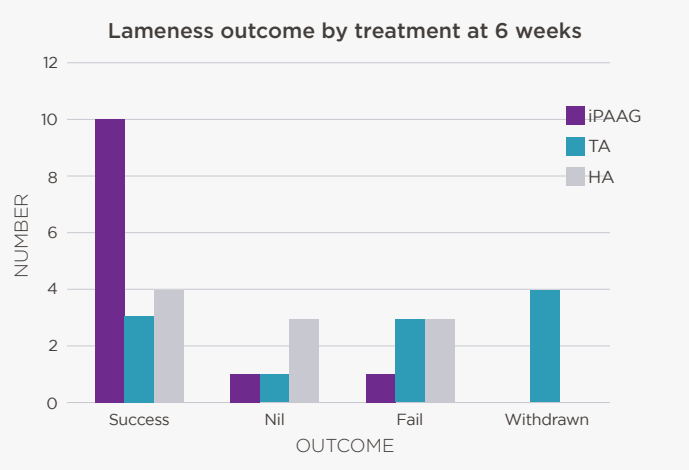
Throughout 14 up to 28 days the gel becomes fully integrated into the synovium and joint capsule by a combination of cell migration and vessel ingrowth forming a thick, cushion-like synovial membrane consisting of blood vessel and collagen integrated gel covered by a novel and hypercellular synovial cell lining[4].

"increases the elasticity and tensile strength of the capsule improving its capacity to transfer load"

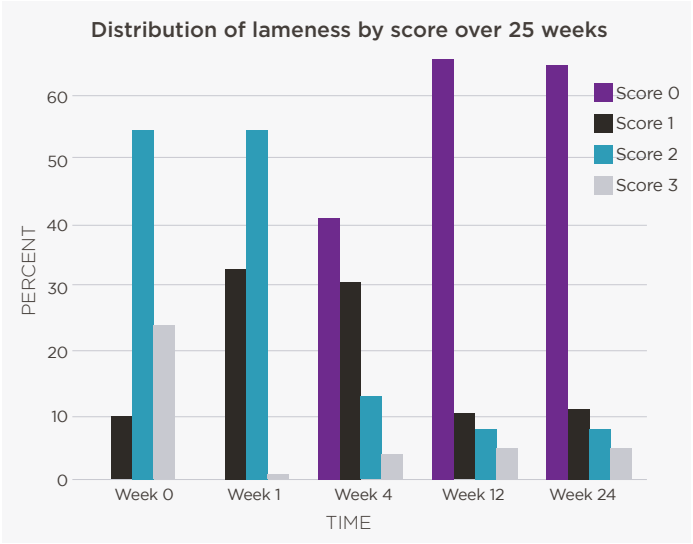
As a result, ArthramidVet® has a long-lasting augmentation effect on the synovium and joint capsule. It increases the elasticity and tensile strength of the capsule, improving its capacity to transfer load[7] and resulting in a reduction in mechanoreceptor and nociceptor activation in the capsule itself. The formation of a new and hypercellular synovial cell lining[4] further restores synovial health and, when combined, these properties reduce the pain and inflammation of synovitis and re-establish healthier joint function and homeostasis[1,2,6].

# Clinical Efficacy

Multiple clinical studies have proven efficacy of > 82.5% in both animals[1,2] and humans[7], with long-lasting and superior results compared to conventional treatments.




*Comparison of 2.5% iPAAG versus Triamcinolone (TA) and Hyaluronic Acid (HA) in a double-blinded positive control study JEVS 107 (2021) in horses showing 83.3% successful resolution of lameness at 6 weeks in ArthramidVet® treated group.*




*Distribution of lameness scores at baseline (Week 0) and at 1, 4, 12, 24 weeks following treatment with ArthramidVet®, showing 65.3% of horses still lame-free at 24 weeks, JEVS 77 (2019) 57-62.*

"long-lasting and superior results compared to conventional treatments"

# Case Selection & Management

ArthramidVet® is indicated for the treatment of lameness due to non-infectious inflammation of joints.

ArthramidVet® can be used in any joint that is displaying clinical signs of dysfunction such as pain, synovitis, effusion, reaction to flexion, lameness that responds to intra-articular analgesia, and those with abnormal joint findings detected using diagnostic imaging modalities such as radiology, ultrasonography, scintigraphy, CT, or MRI. It is recommended for use as early as possible in the joint disease process (e.g. synovitis and capsular stiffness), but is also highly effective in chronic or severe cases.

Following treatment, animals should be rested for 48 hours. After this time, the animal can return to exercise concomitant to its degree of lameness until a response to treatment is seen — typically 2-4 weeks after treatment.

Training modification to accommodate the degree of lameness and the disease process being managed should be considered. The use of alternative training methods such as swimming, water treadmills and dry treadmills are encouraged during the tissue integration phase and may offer better long term results.

Animals will typically show a gradual reduction in lameness from the first week after treatment and a concurrent reduction in reaction to passive flexion. After 4 to 6 weeks, no further improvement is expected, and re-examination at that time is indicated to either administer a second dose in those that have partially responded (around 10-15% of cases, depending on dosage) or to reassess the accuracy of the diagnosis.

It is important for owners to understand this time lag for a treatment effect to be seen as this contrasts with most conventional therapies. For this reason, and the long-lasting benefits seen, it is also reasonable to consider treating the animal during periods of reduced exercise demands or earlier in the animal's training programme than considered normally.

ArthramidVet® can be used concurrently with other medications (2.5% iPAAG is permeable to salts and organic molecules), therefore veterinarians may still consider using other IA medications, including orthobiologics. For example, when a more immediate reduction in acute inflammation is required, with treatment of ArthramidVet® taking place before or later on (depending on the IA medication used) to assist in longer term management of the affected joint(s). Concurrent use of NSAID's with ArthramidVet® may also be useful and carries no contra-indications.

# Dose & Administration

ArthramidVet® is for intra-articular injection only. The dose injected into each joint can be varied depending on the severity of disease, the size of the joint and duration of clinical signs. The following dosage recommendations have been made for horses based on observed clinical responses to treatment;

| | |
|---|---|
| **Distal Interphalangeal:** | 1-2mL |
| **Proximal Interphalangeal:** | 1 mL |
| **Metacarpo/tarso-phalangeal:** | 1-3 mL |
| **Carpus:** | 1-3mL |
| **Tarsometatarsal/Distal Intertarsal:** | 1 mL |
| **Tarsocrural:** | 2-3 mL |
| **Shoulder:** | 2-3 mL |
| **Stifles:** | 1-2 mL/compartment |

Repeated doses of ArthramidVet® can be given at 6 to 12-month intervals if clinically indicated.

ARTHRAMIDVET®

For further information, including our White Paper and User Guide, scan the QR code above or visit
**www.arthramid.com.au** or **www.arthramid.co.nz**

# References


1. de Clifford L, Lowe J, McKellar C, McGowan C, David F,. A Double-Blinded Positive Control Study Comparing the Relative Efficacy of 2.5% Polyacrylamide Hydrogel (PAAG) Against Triamcinolone Acetonide (TA) and Sodium Hyaluronate (HA) in the Management of Middle Carpal Joint Lameness in Racing Thoroughbreds. Journal Equine Vet Science, 2021, 103780: Available from; https://doi.org/10.1016/j.jevs.2021.103780
2. de Clifford, L.T., Lowe, J.N., McKellar, C.D., Chambers, M., David, F., A single site, double-blinded, prospective study on the comparative efficacy of a 2.5% polyacrylamide hydrogel in horses with intercarpal joint lameness. Journal Equine Vet Science; Vol 77, 2021, pp 57-62
3. Narins, R.S. and Schmidt, R., Polyacrylamide hydrogel differences: Getting rid of the confusion. J Drugs Dermatol. 2011; 10(12): 1370-1375.
4. Christensen, L., Camitz, L., Illigen, K.E., Hansen, M., Sarvaa, R., Conaghan, P.G., Synovial incorporation of polyacrylamide hydrogel after injection into normal and osteoarthritic animal joints. Osteoarthritis Cartilage. 2016; 24: 1999-2002.
5. Wehling, P., Carsten, M., Frisbie, D.D., McIlwraith, C.W. and Kawcak, C.E. Autologous conditioned serum in the treatment of orthopedic diseases;the orthokine therapy. 2007 Biodrugs 21 (5): 323032.
6. Kurowska-Storlarska M, Alivernini S. Synovial tissue macrophages in joint homeostasis, rheumatoid arthritis and disease remission. Nature Reviews Published online 07 June 2022; https://www.nature.com/articles/s41584-022-00790-8.
7. Tnibar A, Persson A, Jensen HE, Svalastoga E, Westrup U, McEvoy F, et al. Evaluation of a polyacrylamide hydrogel in the treatment of induced osteoarthritis in a goat model: A pilot randomized controlled Study [abstract]. Osteoarthritis and Cartilage 2014;22:s477.
8. Henriksen, M., Overgaard, A., Bliddal, H., Initial estimates of efficacy of intra-articular 2.5% polyacrylamide hydrogel for the treatment of knee osteoarthritis: An observational proof-of-concept study [abstract]. Arthritis Rheumatol. 2017; 69 (suppl 10).



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